INSTALLATION INSTRUCTION

EX30
Infrared Imager™

MAN-30-06

IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.

2. Keep this instruction.

3. Heed all warnings.

4. Follow all instructions.

5. Do not use this apparatus near water.

6. Clean only with dry cloth.

7. Do not block any ventilation openings. Install in accordance with manufacturer instructions.

8. Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.

9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the power where they exit from the apparatus.

11. Only use attachments/accessories specified by the manufacturer.

12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

13. Unplug this apparatus during lightning storms or when unused for long periods of time.

14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in a way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

IMPORTANT

For best results, please read this Instruction Booklet
prior to installing the **EX30** Infrared Imager.

WARNING !

CSA Certified / UL Listed CLASS 2 power adaptors must be used
in order to comply with electrical safety

Only qualified personnel shall install any **EXTREME CCTV®** surveillance camera. **EXTREME CCTV®** will not be responsible for injuries or damages resulting from the improper installation or use of any equipment sold by **EXTREME CCTV®,** their agents, distributors or dealers.

NOTE: This equipment has been tested and found to comply with the limits for a digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. As part of its' normal operation this device can generate radio frequency energy and if not installed and used in accordance with the installation manual may cause interference to radio communications. However, there is no guarantee that interference will not occur on a particular installation. If the device does cause interference to radio or television reception the user is encouraged to try to correct the interference by one or more of the following measures:

1) Fit Ferrite beads on all cable to and from the power supply box, within the box walls.

2) Route the composite cable between the camera and the power supply in steel conduit piping over the entire run of the cable up to and including connection to a deep conduit base fitted under the camera and a conduit fitting adaptor in the wall of the PSU box.

3) Contact BOSCH Service Center for further advice.

INDEX – *EX30 Infrared Imager™*

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DESCRIPTION

The ***EX30 Infrared Imager*** consists of an LXR camera and an infrared illuminator. This surveillance system gives optimum performance during daylight conditions and in the pitch black of night.

The camera has a “Vari Focal” lens, and is seamlessly switched by a photocell when light conditions change from day to night, ensuring no loss of image quality.

An all-weather housing with tough polycarbonate windows contains all the electronics. Low voltage operation, low power consumption, LED illuminators, thermostat controlled defroster and solid-state CCD technology make this camera very reliable and efficient.

A voltage regulator circuit allows for *DC* or *AC* operation, and also provides protection from voltage surges, transient spikes, and reverse voltage.

See the Light. Get the Picture.™

UNPACKING

Care should be taken when unpacking the shipped unit. Check the parts list and confirm all items have been located. Inspect the equipment thoroughly to ensure nothing was damaged in transit.

Contact BOSCH Service Center if a problem is noted, see the rear page of this booklet for contact numbers.

PARTS LIST

(items supplied with unit)

- **EX30** camera assembly
- Installation Instructions booklet
- Cardboard box containing one adjustable wall - mounting bracket.
- Extra window (80º illumination beam)

ITEMS REQUIRED FOR INSTALLATION

(not supplied with units)

- Mounting hardware
- Mounting tools
- Camera Power Supply

INITIAL PREPARATIONS

- Determine the operating voltage at the installation site. The camera‘s Voltage Regulator Board accepts both 10.5-40VDC and 12-28VAC input without change to internal connections.

- Determine the optimum mounting location for the camera. *See Section 4, Camera Mounting.*

- All cameras have been tested and pre-focused with telephoto setting as factory default prior to shipment. If any adjustment needed, it is advisable to check the camera’s operation before installation.

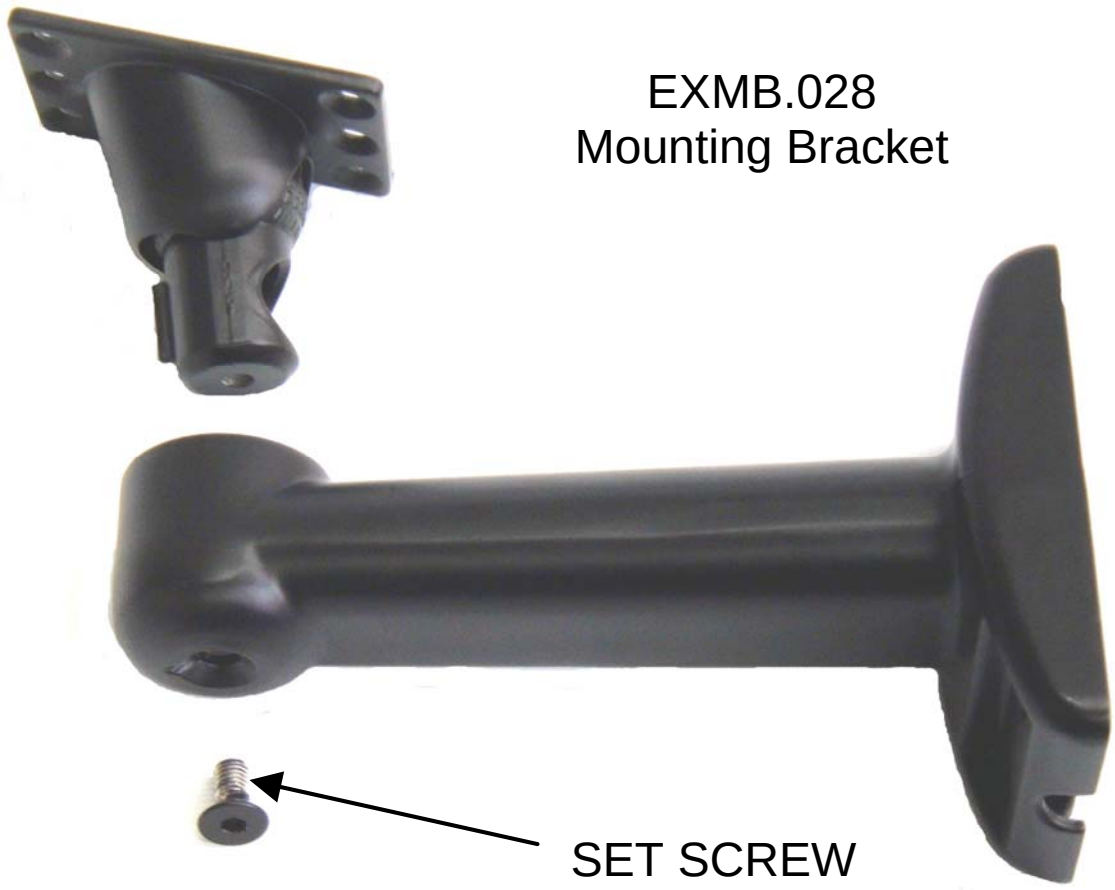
GUIDELINES

The installation of the EX30 camera is explained in Sections 1 to 7.

It is important that these steps are followed in numerical order.

It is also important to follow proper safety guidelines when installing this product.

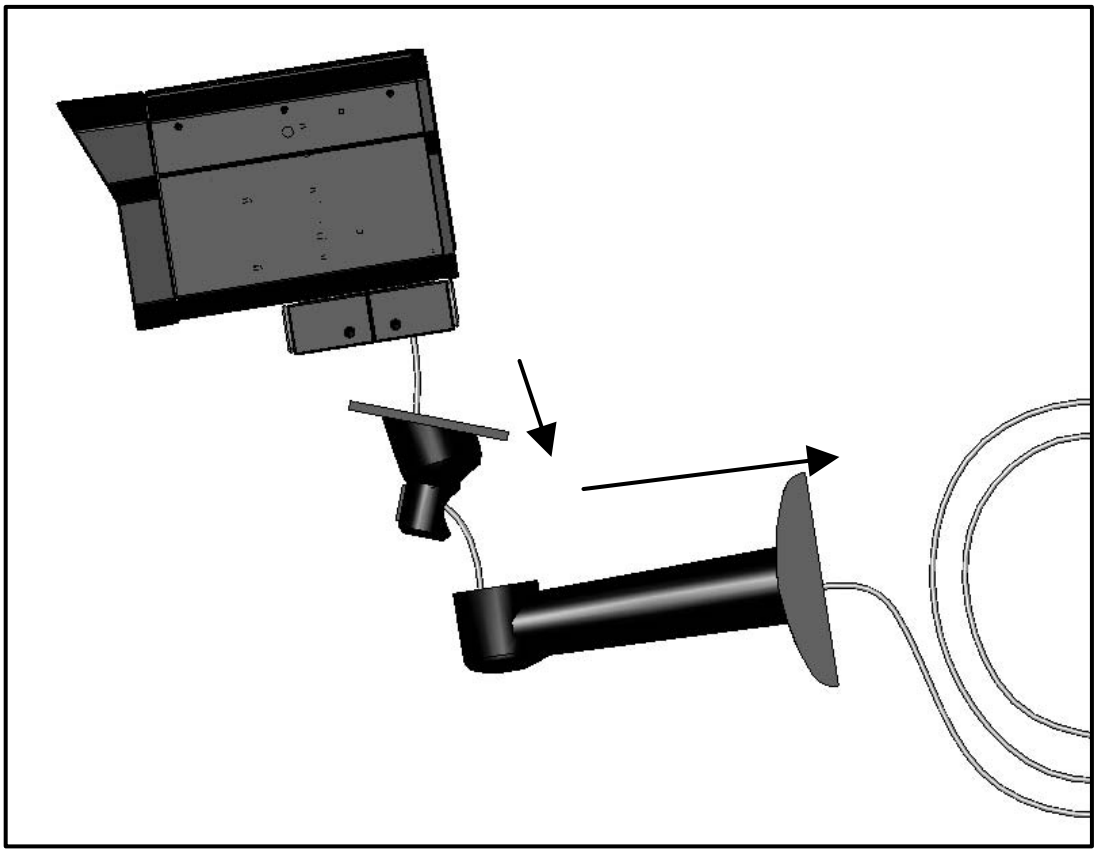
1. MOUNTING BRACKET PREPARATION



- Use the supplied Allen Key to remove the setscrew from the supplied mounting bracket.
- Separate the two sections of the mounting bracket.

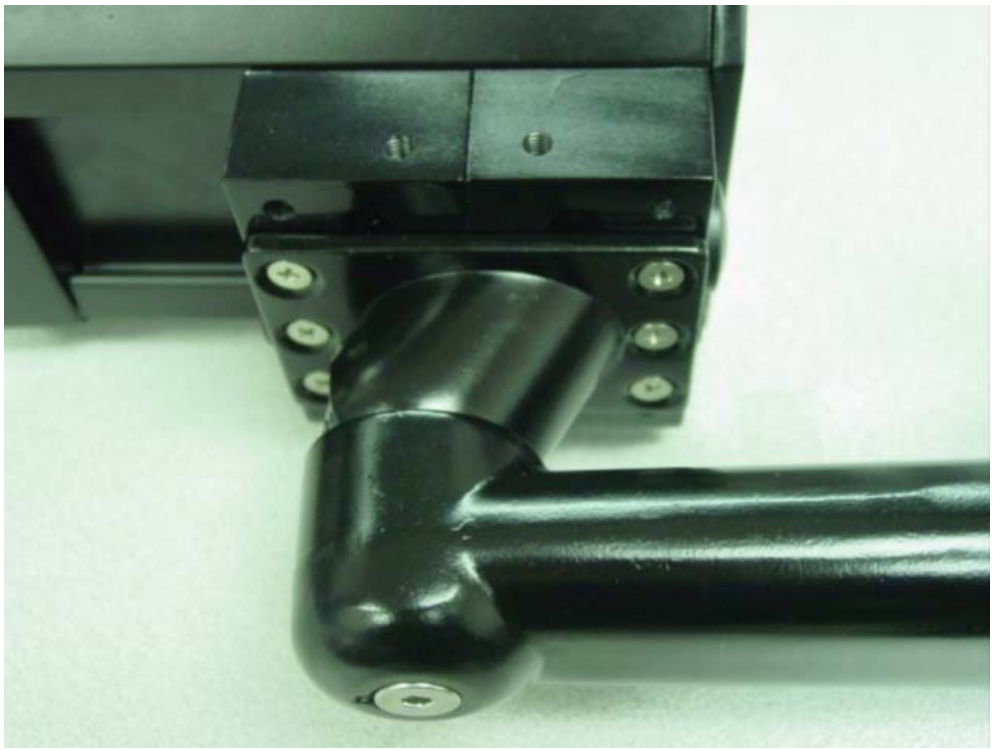
2. CABLE / BRACKET INSERTION

EX30 Camera



- Carefully feed the Power/BNC cable through both sections of the mounting bracket.
- Make sure the cable is not kinked, chafed, or split during this procedure.

3. MOUNTING BRACKET ATTACHMENT



- Attach the Mounting Bracket to the Camera's Mounting Block using the six bolts supplied with the bracket.
- Snug the two halves of the bracket together with the Allen head set screw.
- Tighten the setscrew enough so that the camera can be adjusted for angle. Do not over-tighten.
- Note the angled part of the mounting bracket faces to the rear of the camera.

4. CAMERA MOUNTING

Warning: this apparatus must be securely attached to the wall or ceiling in accordance with installation instructions. Failure to follow installation instructions ma results in injury/death.

Select a suitable location that protects the camera from accidental damage, tampering and environmental conditions exceeding the specifications of the camera to be mounted.

Caution: Ensure the selected location is protected from falling objects, accidental contact with moving objects and unintentional interference from personnel. Follow all applicable building codes.

☞The following installation guidelines must be followed:

- Locate the bracket such that it cannot be easily interfered with, either intentionally or accidentally.
- Select a smooth, flat mounting surface to ensure proper sealing. The surface must also be capable of supporting the combined weight of the camera and mounting hardware under all expected conditions of vibration and temperature.
- Secure all cabling.

- Installation should only be performed by skilled personnel

Hardware required:

- For ceiling mount:
  1. Mounting Bracket, Model EXMB.029, Qty = 1
  2. ¼'' x 2" Lag Screws, Qty = 1
  3. ¼'' Washer, Qty = 1
- For wall mount:
  1. Mounting Bracket, Model EXMB.028, Qty = 1
  2. ¼'' x 2" Lag Screws, Qty = 4

Tools required:

- Drill
- Stud Finder
- 5/32" Drill Bit
- Socket Driver
- 7/16" Socket

Mounting instructions for wall and ceiling mount:

Camera is intended to be securely mounted to a wall using mounting bracket model EXMB.028, or to a ceiling using mounting bracket model EXMB.029. Camera has been evaluated for wall mounting using the following wood screws secured into a 2x4 stud under ½" drywall. Wood screws, 1/4" lag, dia Ø1/4", 2" long, 9 TPI, with ½" head. Camera has been evaluated for ceiling

mounting using the following wood screws secured into a 2x4 stud under ½" drywall:

- wood screws with washer, 1/4" lag, dia Ø1/4", 2" long, 9 TPI, with ½" head
- 16" flat washer.

Camera has not been evaluated for safety requirements using other mounting kits.

Installation (Ceiling and Wall Mount)

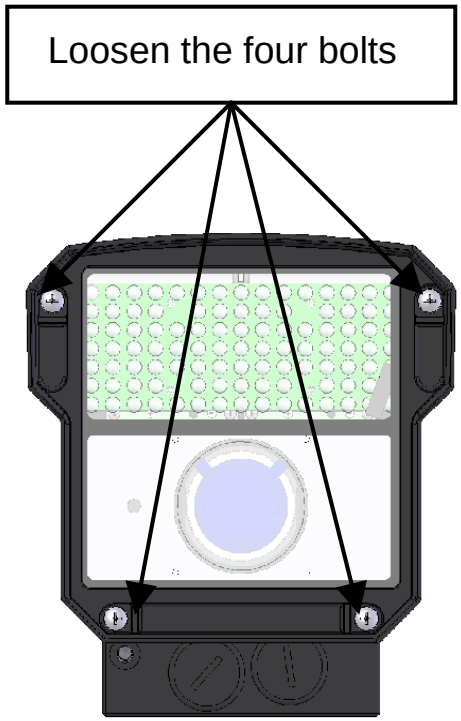
- Locate stud in the ceiling/wall and mark outside edges of stud.
- Using ceiling/wall mount bracket as a template, align the mounting hole with the center of the stud.
- Marking the point on the ceiling/wall in the center of the hole where mounting screw will be positioned.
- Remove the ceiling/wall mount bracket and using a 5/32" drill bit, drill a pilot hole at the marked point.
- Align the ceiling/wall mount bracket mounting hole with the hole drilled in the ceiling/wall
- Using a 7/16" socket and driver, secure the ceiling/wall mount bracket by screwing the 1/4" lag bolt with 1/4" washer securely into the stud.
- Use additional 1/4" lag bolt and 1/4" washer to secure the remaining mounting holes.
- Installation is complete.

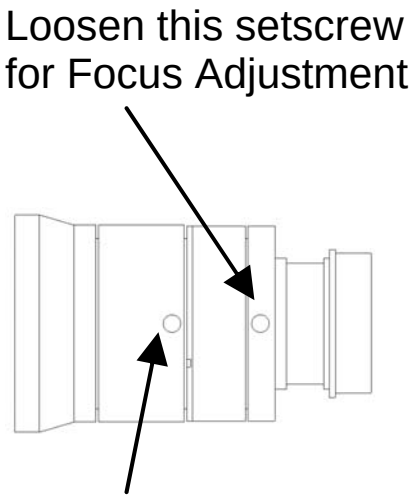
5. CAMERA LENS ADJUSTMENTS AND SELECTING THE WINDOW

For optimum picture quality, the camera lens should be as close as possible to the inside face of the viewing window, without touching.

The camera is pre-focused with telephoto setting as factory default. Follow the steps below if any adjustment needed.

- Loosen the four bolts from the extrusion.
- Remove the faceplate, window and the lens foam, set aside. Make sure the photocell is not dislodged.
- Do proper adjustment as **5.1**





5.1. Vari Focal and “Auto-Iris” Control Adjustments

- Loosen the lens set screws for focus/zoom adjustments.
- The setscrew marked **N** ←→ ∞ is used for image focus.
- The setscrew marked **T**←→ **W** is used for telephoto or wide-angle settings.
- Re-tighten the setscrews after focus adjustments have been completed.

Window Selection

Telephoto (Factory standard)	Use 40º illumination beam
Wide	Use 80ºillumination beam

IMPORTANT

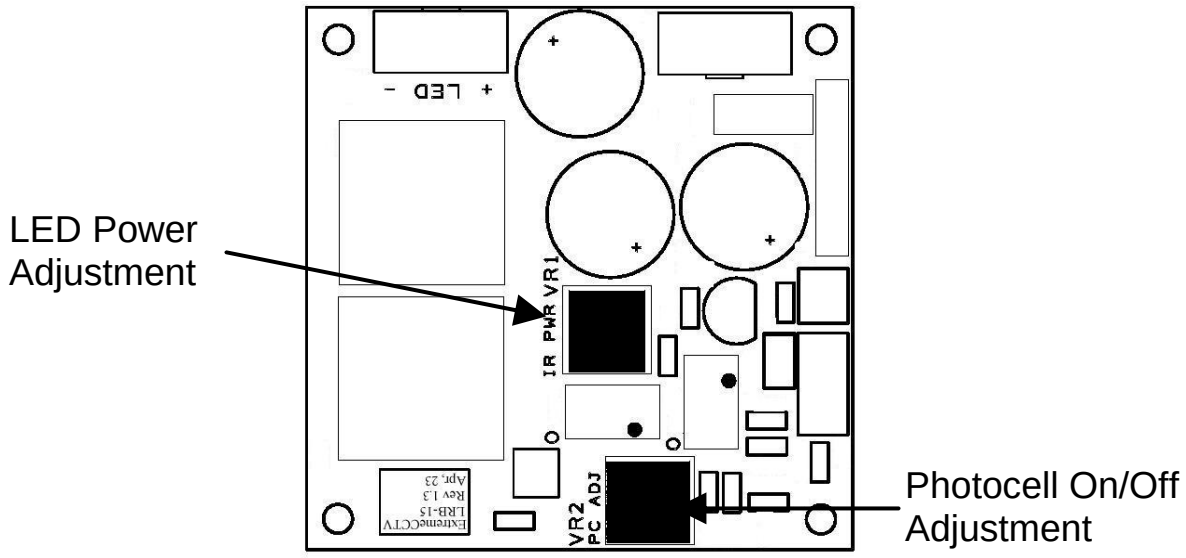
Use a Neutral Density filter or Infra-Red Pass filter to cover the lens during focusing to simulate low light conditions on scene for correct 24-hour focusing. For camera with vari-focal lens, the camera should be focused with the lens iris fully opened to simulate the worst possible depth of field. Using a Neutral Density filter or Infra-Red Pass filter will ensure the iris is fully open for correct setup and adjustment.

Note that statement above is applicable only for Day/Night or IR version cameras.

6. LED ARRAY - POWER ADJUSTMENTS

If adjustment is needed, remove the rear cover for access to the LRB. The **EX30** needs to be powered-up while making the LED power adjustments. Cover the photocell to turn the LEDs “ON” (850nm LEDs will have a slight red glow).

For photocell “On/Off” light-level adjustment, rotate **VR2.** Clockwise is off and counter-clockwise is on.



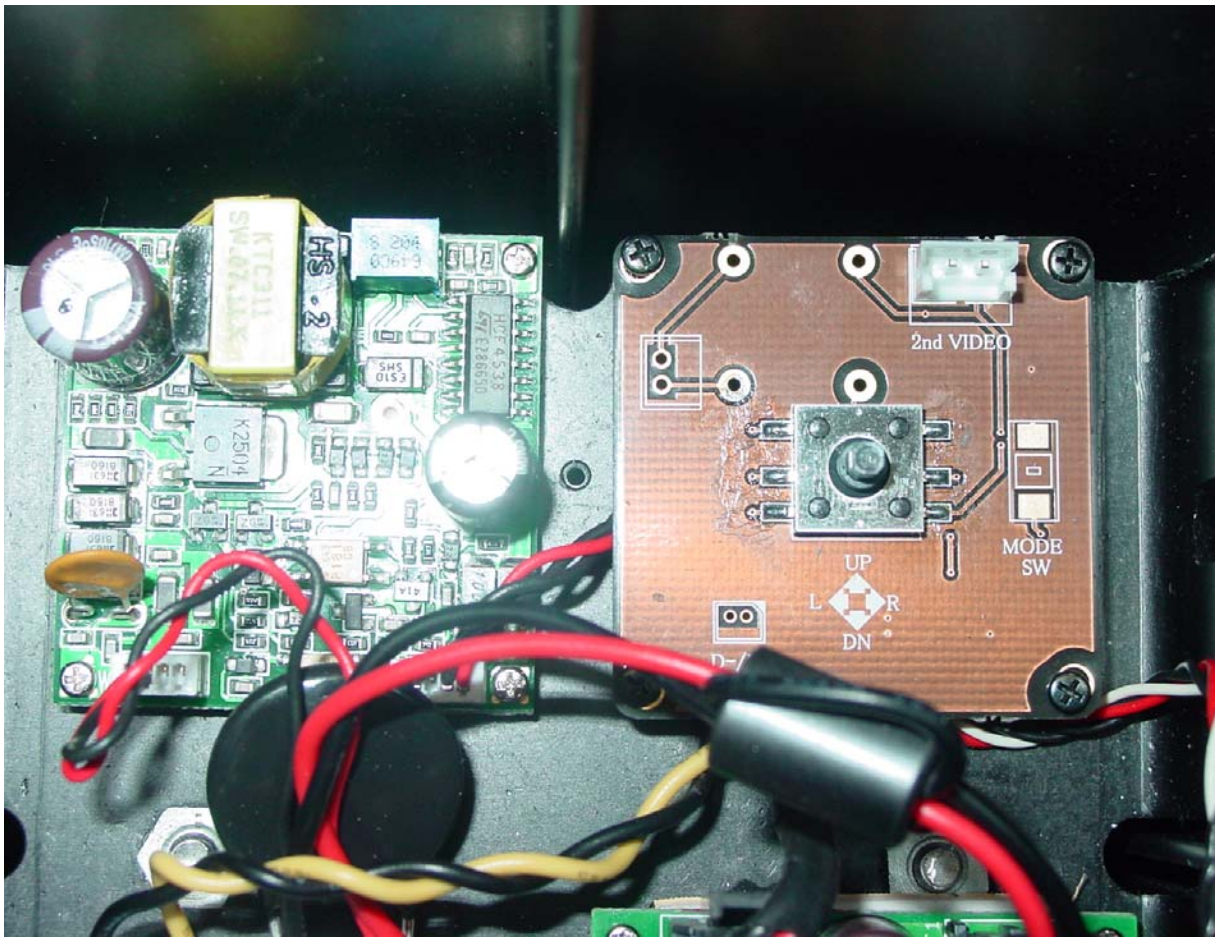
LED Power and Photocell On/Off Adjustments

Adjust the LED power if they are too bright or too dim.

For IR power adjustment, rotate **VR1.** Clockwise is high and counter-clockwise is low.

7. OSD ADJUSTMENT

1. Open the back cover of EX30 to access the OSD controls.
2. Enter the OSD menu by pressing the joystick button down.
3. Follow the instructions below to make camera adjustments.



8. OSD MENU

MENU

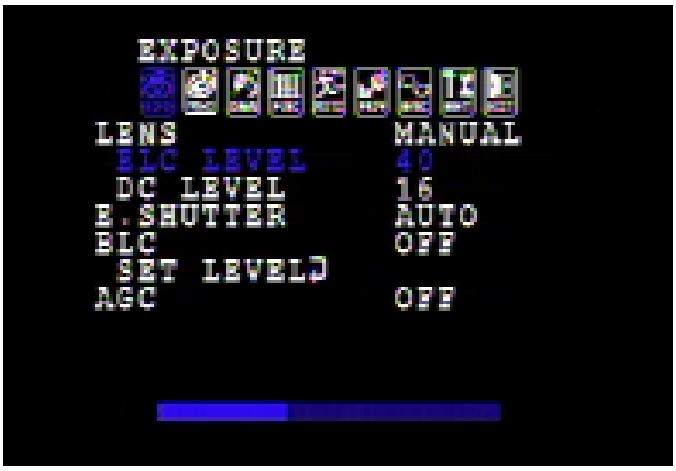
1. EXPOSURE	5. MOTION
LENS MANUAL/DC E. SHUTTER AUTO~1/100000 BLC AGC OFF~36dB	ALRAM
2. COLOR	**6. PRIVACY**
WB MODE AWC ATW MANUAL PUSH LOCK	MASK 1 MASK 2 MASK 3 MASK 4 COLOR SET
3. DAY&NIGHT	**7. SETUP**
D&N MODE AUTO COLOR B/W EX-CONT	CAMERA ID TITLE EDIT TITLE RESET TITLE POSITION DPC SET LANGUAGE PC CONT.
4. FUNCTION	**8. EXIT**
MIRROR SHARPNESS GAMMA SLC HME DRC	EXIT SAVE & EXIT FACTORY SET

■ CAMERA OPERATION

EXPOSURE - LENS

Select the type of lens (MANUAL / DC)

MANUAL : Select for manual iris control. The brightness of the screen is adjustable by ELC level.



DC : Select for automatic iris control. The offset brightness of the screen is adjustable by DC level.

Note

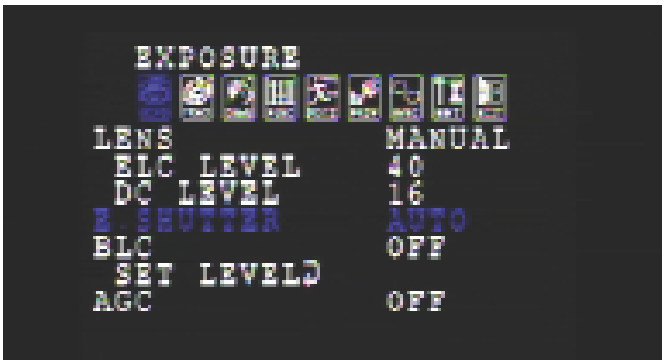
The following default settings should not be changed:

Lens = DC; E.Shutter = Auto

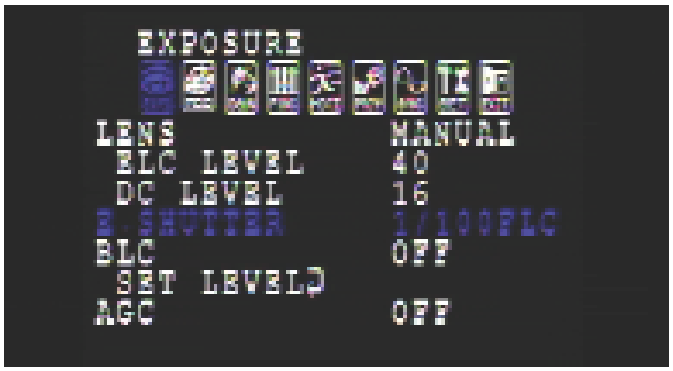
■ CAMERA OPERATION

EXPOSURE - E.SHUTTER
This mode is selectable to either Auto or Fixed control for the electronic shutter.

AUTO : Set for complete automatic operation of the electronic shutter.



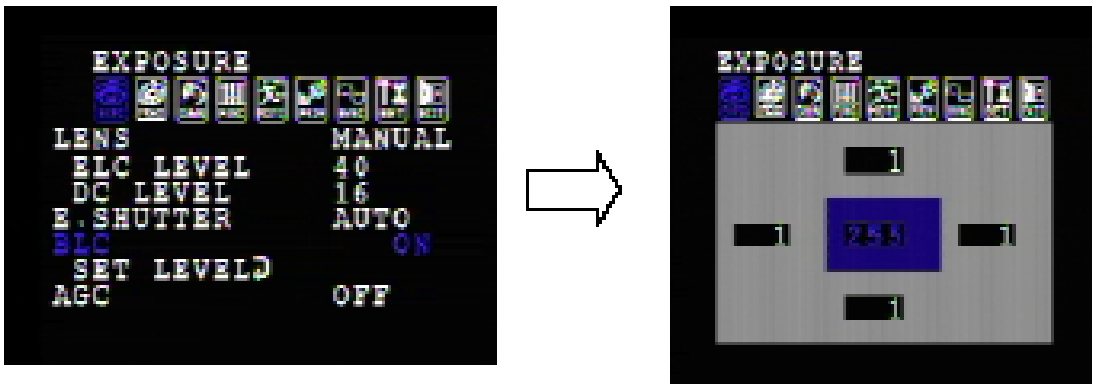
FIXED : Set to desired minimum shutter speed, 10 levels available.
1/50s(PAL),1/60s(NTSC),1/100s,1/250s,1/500s,1/1000s,
1/2000s,1/4000s,1/10000s,1/100000s)



■ CAMERA OPERATION

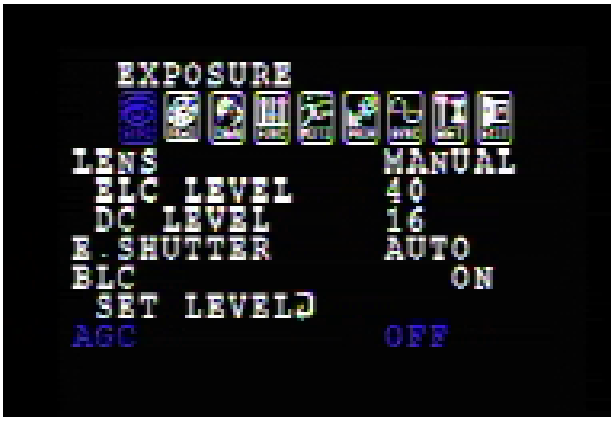
EXPOSURE - BLC (Back Light Compensation)
When there is a strong backlight in the scene, change BLC in order to get a uniform image.

By selecting "BLC ON", BLC activity area and level are adjustable in 5 sections (TOP / DOWN / CENTER / RIGHT / LEFT). Increase the level in areas desired to become brighter for compensation.



■ CAMERA OPERATION

EXPOSURE - AGC (Auto Gain Control)
This function is designed to automatically adjust video gain to enhance the picture in darker scenes.
AGC is adjustable within OFF - 36dB.



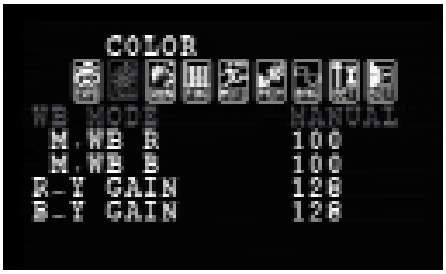
■ CAMERA OPERATION

COLOR - WHITE BALANCE CONTROL
Screen color is adjustable in accordance with the type of ambient light on scene.

AWC : Use this for color temperatures below 2500˚C and over 9500˚C (indoors)
ATW : Use this for color temperatures between 2500˚C and 9500 ˚C (outdoors)
Manual : The white balance is manually controlled.
PUSH LOCK : If PUSH LOCK is selected, the white balance adjusts automatically for the current light on scene.

■ CAMERA OPERATION

Manual : Adjust RED or BLUE in accordance with the type of ambient light on scene.



■ CAMERA OPERATION

COLOR - GAIN CONTROL
Select the desired gain value. The higher the gain level, the more the scene displays that color.
R-Y GAIN : Adjustment of RED color
B-Y GAIN : Adjustment of Blue color

■ CAMERA OPERATION

DAY & NIGHT (AUTO / COLOR / B/W)
This function determines how day and night modes are handled.

AUTO : The camera automatically switches between day and night mode depending on the light level.
COLOR : The camera stays in day mode.
B/W : The camera stays in night mode.

BURST SIGNAL : If ON, the screen shows a color burst while switching to day mode from night mode.
SET LEVEL : Not adjustable.
READ TIME : The switching time delay in AUTO mode for when the scene suddenly gets darker or brighter, adjustable from 3 secs to 12 secs.

Note

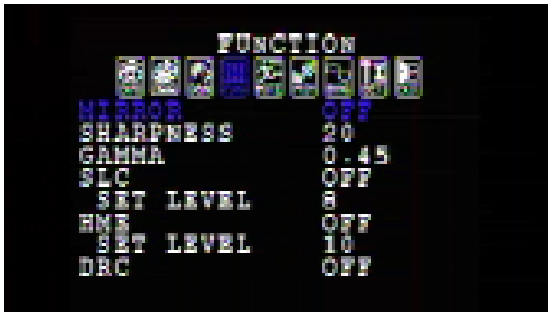
The following default setting should not be changed.

Day & Night = Auto

■ CAMERA OPERATION

FUNCTION - MIRROR

If ON is selected, the horizontal image on the screen is reversed.

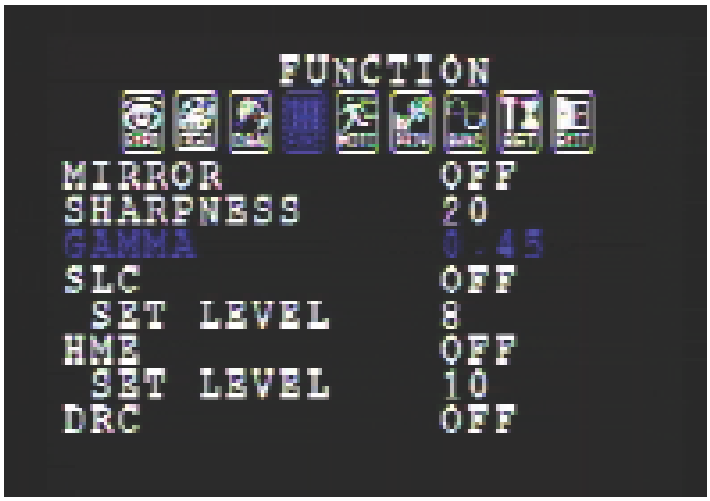


FUNCTION - SHARPNESS

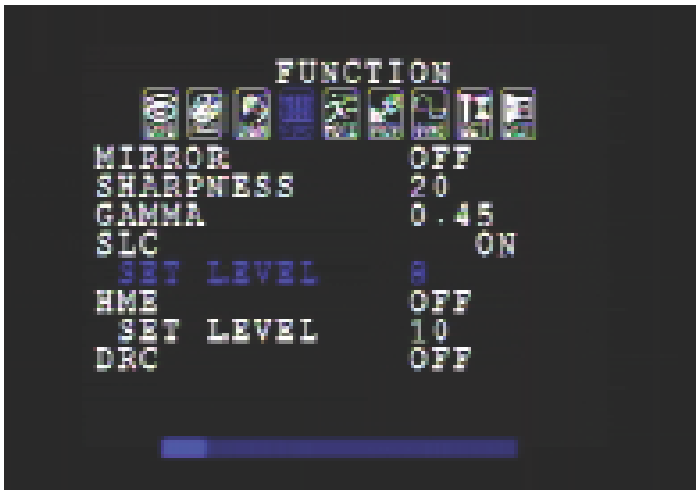
The image sharpness is adjustable.

■ CAMERA OPERATION

FUNCTION - GAMMA
GAMMA LEVEL is selectable in 3 levels. 0.45, 0.6, 1.0.



FUNCTION - SLC (SIDE LIGHT COMPENSATION)
Select this mode when the corner of the screen is darker than the center.
As the level increases, the image becomes brighter.

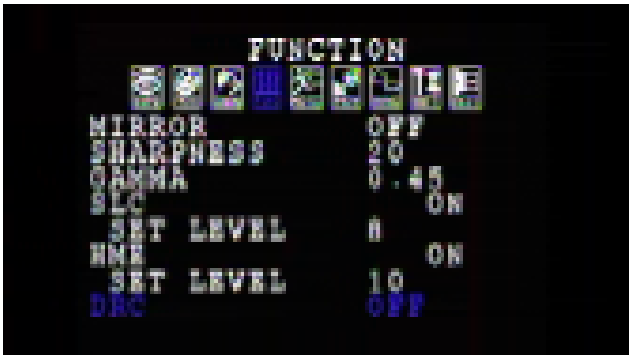


■ CAMERA OPERATION

FUNCTION - HME (High Light Masking Exposure)
This function masks the bright areas on the screen.

The brightness of HME is adjustable.
As the level of HME is increased, the masking area increases.

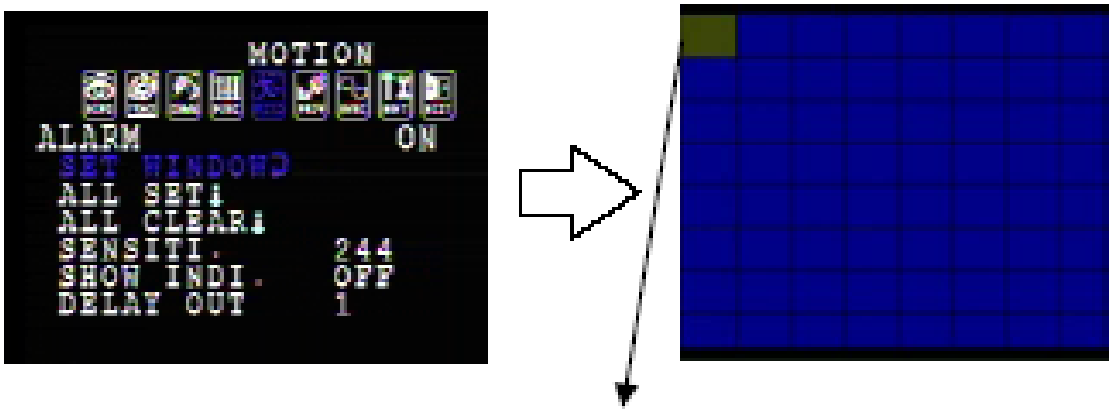
FUNCTION - DRC (Dynamic Range Compensation)
This function is to compensate darker images when different exposures are in one scene.



■ CAMERA OPERATION

MOTION DETECTION

This camera feature allows you to detect the movement of an object in 64 different areas of the screen, and display an alarm on the screen.



Select or deselect blue areas with the joystick, only the blue areas are monitored for movement.

ALL SET : Set entire screen for movement detection.
ALL CLEAR : Clear entire screen for movement detection.

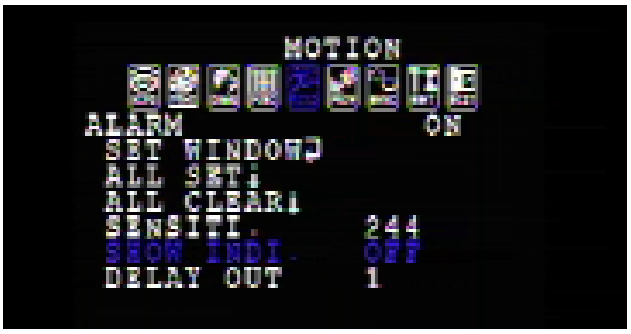
ALL SET

ALL CLEAR

■ CAMERA OPERATION

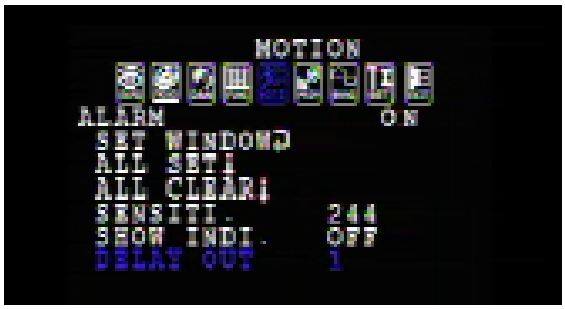
Sensitivity level : As the sensitivity level increases, smaller movements are detected.

SHOW INDI : The motion detected indicator can be selected as icon, trace or off.



■ CAMERA OPERATION

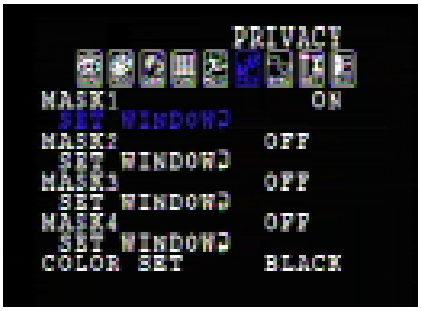
DELAY OUT : The alarm signal display on the screen is delayed from 1sec to 15 sec.

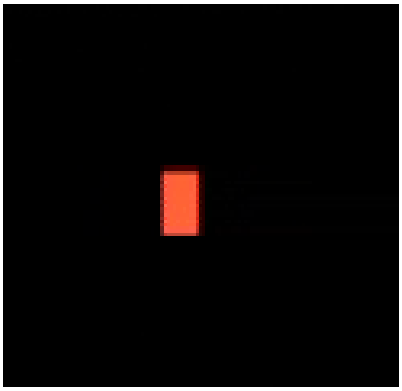


■ CAMERA OPERATION

PRIVACY (PRIVACY MASKING ZONE)
This function sets certain areas of the screen to be hidden. 4 masking zones are available.

MASK 1 : Adjust the masking area by using the joystick.
MASK 2 : Adjust the masking area by using the joystick.
MASK 3 : Adjust the masking area by using the joystick.
MASK 4 : Adjust the masking area by using the joystick.





If "set window" is selected, the cell is displayed on the screen and then adjusted by moving the joystick UP / DOWN / RIGHT / LEFT. Once desired area is covered press the joystick in until mask area is black then move the joystick any direction to return to the previous screen.

■ CAMERA OPERATION

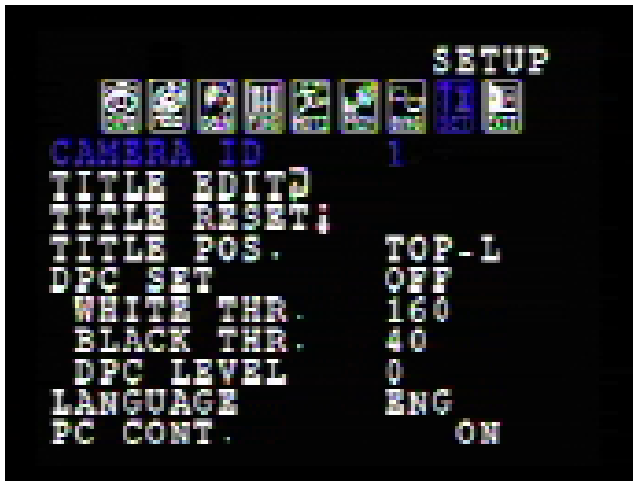
PRIVACY - COLOR SET

This function is to select the color of the masking cells.

■ CAMERA OPERATION

SET UP - CAMERA ID

Enter a camera ID as a unique identifier.

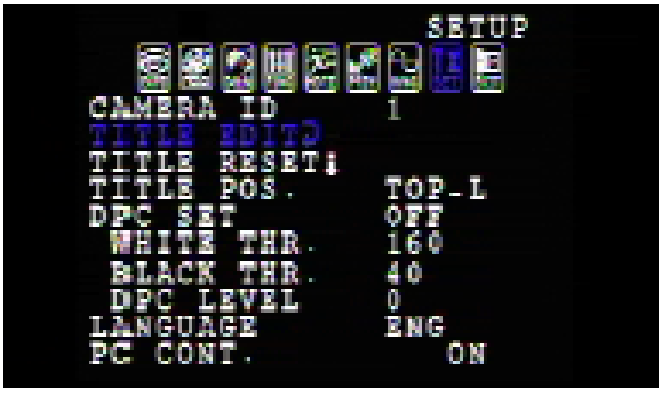


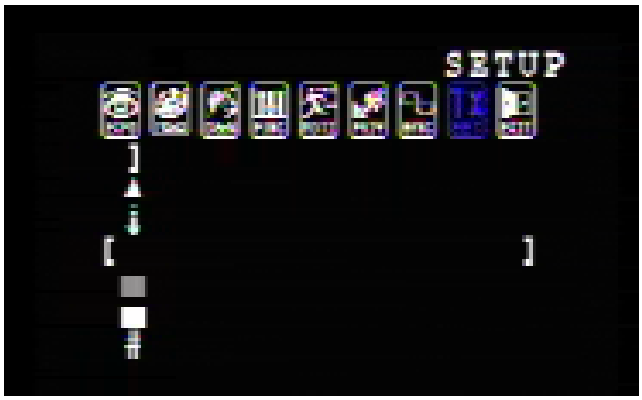
■ CAMERA OPERATION

SET UP - TITLE DISPLAY

Camera title is displayed on the screen when a value is entered.

TITLE EDIT : Select the value
TITLE RESET : Clears the title.
TITLE POSITION SELECTION : Set area to display title.





If editing the title, this image is displayed, select desired characters by using the joystick.

■ CAMERA OPERATION

SET UP - DPC SET (Defect Pixel Cancellation)
This function automatically removes dead pixels in real time.

WHITE THR. : For cancelling the white defective pixels.
BLACK THR. : For cancelling the black defective pixels.

The cancellation sensitivity of defect pixels is adjustable.
For adjusting white defective pixel sensitivity, set WHITE THR. and DPC LEVEL at the same time.
For adjusting black defect pixel, set BLACK THR and DPC LEVEL at the same time.

■ CAMERA OPERATION

SET UP - LANGUAGE

The language of the OSD menu is selectable to either English or Chinese.

■ CAMERA OPERATION

SET UP - PC CONT.

PC communication is available by setting PC CONT. "ON" (not supported)

■ CAMERA OPERATION

EXIT

EXIT : Exit the OSD menu.
SAVE & EXIT : Exit the OSD menu after saving the current setting.
FACTORY SET : Change setting to the factory default. (make sure to SAVE & EXIT after)

NOTE : Lens, Day & Night and ID/Title settings stay the same even after a FACTORY SET.

9. CAMERA RE-ASSEMBLY

Make sure all wires are properly connected, all holes are sealed against moisture penetration, and all mounting screws are tight.

- Slide the lens foam over the camera lens. Make sure the foam is snug and as close to the faceplate viewing window as possible and the photocell is secure with an unobstructed view.
- Attach the window, faceplate, and the rear cover to the camera housing. Tighten the four bolts.
- Tighten the camera's adjustable mounting bracket after the desired viewing angle has been determined.
- Power-up the camera and check its operation.

10. TROUBLESHOOTING GUIDE -CAMERA

PROBLEM	*POSSIBLE CAUSE*	*LIKELY SOLUTION*
No Video	1. Power Supply: - Connections …. -Voltage Range... 2. Video Connections	Check the input power connections at the terminal block, ensuring no wires are loose. The supply range is: *12-28VAC* or *10.5-40VDC*. Measure the voltage at the terminal block. Determine if the wiring polarity at the "Video Connector" terminal block is correct. Check BNC connector. If still no video, connect the camera directly to the

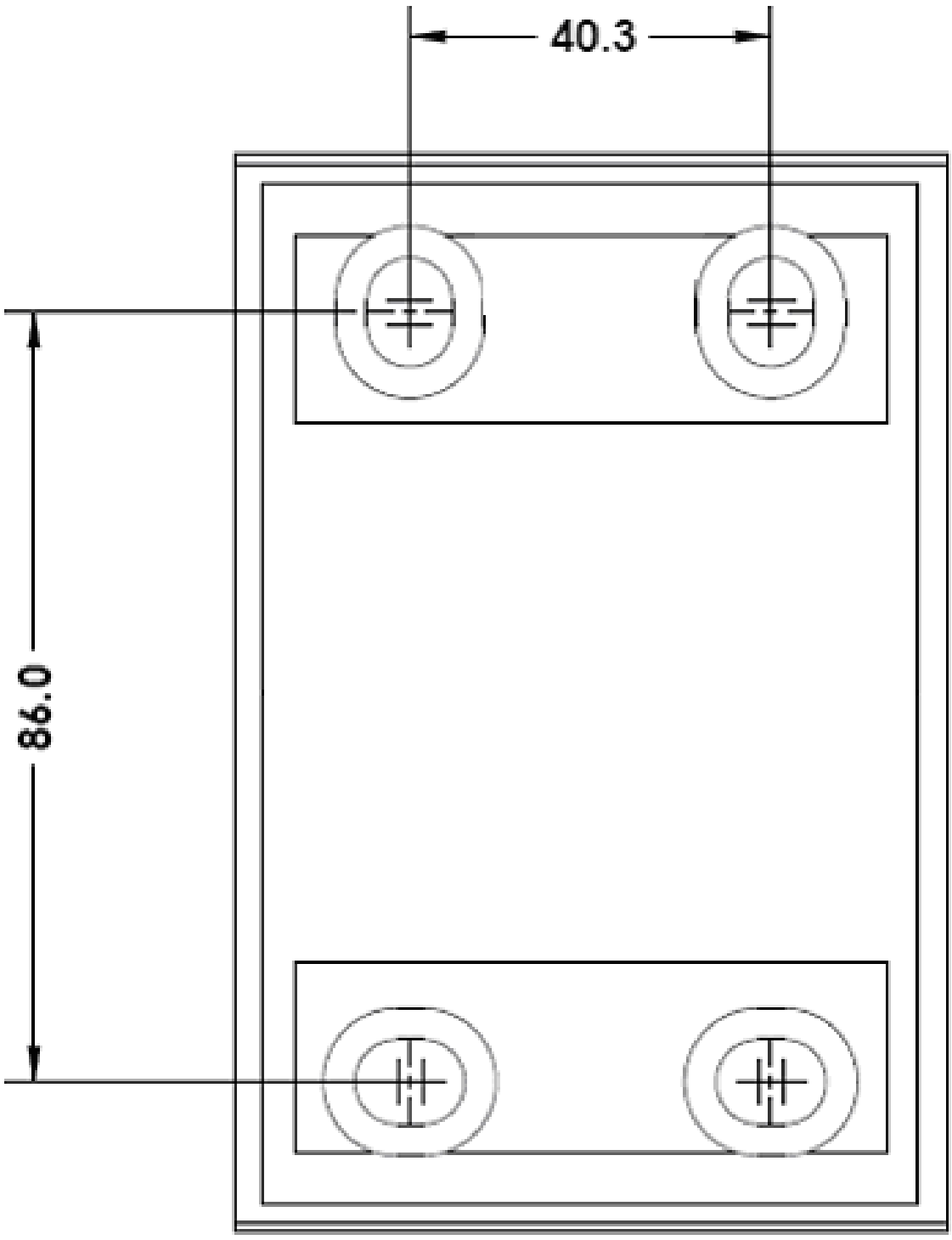
		monitor. Check the video signal. If okay, the problem is with the interconnections. If still no video, contact BOSCH Service Center. See rear page of this manual for contact information.
Poor Picture Quality Dim Image Snowy Image	Iris closed Poor Video Signal **Noisy Power Supply**	Increase iris level on lens Ensure the video cable is correctly matched and terminated with 75 ohms at each end. Make sure the video cables are of similar types. Check all power

		connections. Relocate or replace the power supply.
Horizontal Scan Lines, Rolling Up or Down	**Ground Looping on video cable**	Check the coax cable shield is not touching “ground”, e.g. at the couplings. An electrically isolated circuit board or isolation transformer may be required.
Negative, scrambled, or faded image	Low voltage	Check voltage at input power cable. Must be >10.5VDC or >12VAC. Video leads reversed connection.

11. TROUBLESHOOTING GUIDE – LEDs

PROBLEM	*POSSIBLE SOLUTION*
Fuse Blows	- Check the fuse rating. - Check for shorting between the housing and the input power wires.
Don't know if LEDS are "ON"	- 850nm LEDs will have a faint red glow when "ON". 940nm LEDs are covert. - Aim the LEDs directly at an IR sensitive camera, or use a mirror to see the lights through the EX30 camera, or wait for the LEDs to warm up (two minutes).
LEDs are not "ON"	- Cover the photo sensor to activate power to the LEDs (up to 30 seconds delay for activation). - Adjust the photocell's variable resistor towards the "ON" position. - Adjust power to the LEDs.
LEDs are not turning "OFF" when sufficient ambient light is present	- Make sure the photo sensor is not covered or hidden behind any object. - Adjust the photocell's variable resistor towards the "OFF" position (up to 30 seconds delay). The LEDS will stay "ON" or "OFF" if the adjustments are at full turn.

12. MOUNTING HOLE - DIAGRAM



- *All dimensions expressed in millimeters*
- *1.59” X 3.38” in inches*

13. GENERAL SPECIFICATIONS

Power Consumption:	36W Max.
Maximum Current:	3.0A @12Vdc
Input Voltage:	24VAC 12VDC
Enclosure (housing):	Aluminum casting
Viewing Window:	Glass
Dimensions:	130mm **H** (5.12") 134.5mm **W** (5.30" 212mm **L** (8.35")
Operational Temperatures:	-50^0 C to $+50^0$C
Weight:	2.2kg (4.9 lbs.)

Subject to change without notice.

Note:

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